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| EXAMINER | |
|---|---|
| SHANG, ANNAN Q | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2623 | |

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/589,142 | MASUDA ET AL. | |
| | Examiner | Art Unit | |
| | Annan Q. Shang | 2623 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *18 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments/amendments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

With respect to claims 1-5 and 7, rejected under 103(a) as being unpatentable over **Curry et al (3,750,022)** in view of **Furukawa et al (5,987,069)** and claim 6, rejected under 103(a) as unpatentable over Curry in view of Furukawa and further in view of **Schartzman et al (6,385,773),** applicant argues that, "...cited portions of Curry et al only describe, however, an upper pilot tone for testing or 'control purposes.' Such portions of Curry et al. do not describe how the pilot tone would be used 'for testing or control purposes'" "....cited portions of Curry et al. do not disclose or suggest the claimed feature of inserting a tone signal into downward signals to prompt a noise control device to boost a transmission level..." and further argues that Curry in view of Schwartzman fail to teach the claimed amended limitations.

In response, Examiner disagrees. Examiner notes applicant's arguments, however, Curry teaches reserving frequency band in the downstream communications for pilot tone for system tests or control purposes (col.3, line 51-col.4, line 26). Curry further discloses that the Phantom Subscriber 29 monitors downstream digital transmissions (which includes the tone signal or waveform), extracts or recovers control data or waveforms encoded in the downstream transmission communications, and based on the extracted data, generates timing waveforms, applied this to the downstream signal to either un-attenuated or attenuate to a desired level before

amplification (col.4, lines 40-col.5, lines 19, col.6, lines 47-55 and col.10, line 47-col.11, line 35). The timing waveform that is applied to the downstream signals, which causes opening or closing of switches for either un-attenuated or attenuate to a desired level before amplification, is generated from the tone signal or waveform extracted or recovered from the downstream transmission communications. Hence Curry teaches inserting tone signal in the downstream signal to boost a transmission level at the noise control device or PH-29. Applicant's amended claims do not overcome the prior arts of record. The 103(a) rejection of claims 1-5 and 7 as being unpatentable over Curry et al in view of Furukawa and the 103(a) rejection of claim 6 as unpatentable over Curry in view of Furukawa and further in view of Schartzman is proper, meet all the claimed limitations as discussed below. **This Office Action is made Final.**

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Curry et al (3,750,022)** in view of **Furukawa et al (5,987,069).**

As to claim 1, note the **Curry et al** reference figures 1, 3 and 5 disclose a system for minimizing upstream noise in a subscriber response cable television system and further disclose a system for reducing noise in a signal line, through which signals and

downward signals are transmitted between a center (Head End "HE" 13) and terminals comprising:

Curry teaches a noise-reduction device (Line Control Circuit 'Line-CC' 27 and Noise Measuring Equipment 'Noise-ME' 25 'Line-CC/Noise-ME' 27/25 figs.1, 5, col. 5, lines 5-10 and col. 20, lines 12-34), provided between HE 13 'center' and a plurality of PH-Subs 87, 57, 39 and 29 'terminals,' detects a noise increase regarding the upstream "upward" signals on the signal line and generates a control signal indicative of the noise increase, and is directly triggered by the control signal to insert a tone signal into the downstream signals and instructs Switchable Attenuators (SA) 35 to control attenuation of the upstream signals by an increased amount (col. 3, lines 34-41); note PH-Sub 29 further includes Noise-ME 25, such as Noise-ME 25 at HE 13, col. 20, lines 12-34, and performs identical functions as NME 25 at HE 13, i.e., monitors and measures, in a conventional manner, the noise levels of the upstream transmissions to LCC 27 and any noise exceeding a preselected threshold level causes NME 25 of PH-Sub 29 to generate a signal which causes the LCC 27 to control subsequent upstream transmissions to minimize the reception of upstream noise and interference (col. 3, lines 31-42);

In other alternate embodiment Curry further teaches that the Noise-ME 25 may be located at the PH-Sub 27 (col. 20, lines 12-19) to respond to the tone signal sent from the noise-reduction device by boosting a transmission level of the upward signals by an amount compensating for attenuation of the upward signals by the Noise-ME 25 or in other words to control the gain as a function of frequency across the bandwidth of

either or both of the upstream and downstream amplifiers in its locality, note that Curry teaches reserving frequency band in the downstream communications for pilot tone for system tests or control purposes (col.3, line 51-col.4, line 26). Curry further discloses that the Phantom Subscriber 29 monitors downstream digital transmissions (which includes the tone signal or waveform), extracts or recovers the encoded data or waveform and based on the extracted data, generates timing waveforms, applied this to the downstream signal to either un-attenuated or attenuate to a desired level before amplification (col.4, lines 40-col.5, lines 19, col.6, lines 47-55 and col.10, line 47-col.11, line 35),

Curry fails to explicitly teach where a noise measuring device, provided between the center and the terminals, detects a noise increase regarding the upward signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the control signal to the center,

However, note the **Furukawa** reference figures 3-7, discloses a digital bidirectional communications transceiver "a noise measuring device," (col.3, line 49-col.4, line 7) provided between the center and the terminals, which detects a noise increase regarding the upstream and downstream signals on the signal line spontaneously without a noise measurement command from the center to generate a control signal indicative of the noise increase, and is directly triggered by the control signal to attenuate the upward signals by an increased amount without transmitting the

control signal to the center (col.4, line 31-col.5, line 4, col.11, lines 13-23, col.13, lines 5-30 and col.15, line 41-col.16, line 10).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Furukawa into the system of dynamically detect other noise signals, such as co-channel interference from neighboring upstream or downstream channels and attenuate the signals accordingly to provide an efficient system.

As to claim 2, Curry further discloses where Line-CC/Noise-ME 27/25 NME 25 of PH-Sub 29 including a Noise-ME 25 "noise-level-check unit" which compares the signal component and a noise component and detects a noise increase based on the comparison or well known signal to noise ration (col. 3, lines 31-41 and col. 9, lines 3-8) and Line-CC/Noise-ME 27/25 NME 25 of PH-Sub 29 further includes SA 35 "an attenuator" that attenuates the upstream signals by the increased amount if the Noise-ME 25 detects the increase, and transmits a tone signal via downward signals if Noise-ME 25 detects the noise increase (col. 3, lines 59-65 and col. 20, lines 15-30).

As to claim 3, the claimed noise-control-device including a tone-detection unit which detects the tone signal is met by PH-Sub 39 which operates in response to instructions from LPC 16 or Line-CC to vary amplifier gain in the presence of noise. Command register 213 of Figure 10 registers commands from control signals (col. 3, lines 59-65); the claimed "variable amplifier to boost amplification of upward signals by an amount compensating for the attenuation of the upward signals by said

attenuator" is met as noted above by variable amplifier 43 which increases gain by substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 4, the claimed "tone or more noise reduction devices . . . are provided in one or more of a two-way amplification unit and splitter units provided between the center and the terminals" is met by phantom subscriber unit 29 and SA 35 being provided within line control unit 27 (fig. 3) and includes switching units 111, 113 . . . and filters 106, I 07 . . . as well as amplifiers 137 and 139 which constitute a "bi-directional amplification unit" as claimed.

As to claim 5, the claimed boosting transmission levels by an amount "compensating for a total attenuation of the upward signals of all of said one or more noise-reduction devices" is met as noted above by boosting signals using variable amplifier 43 to increase gain by substantially the same amount as the signal is attenuated (col. 9, lines 46-58).

As to claim 7, the obtaining of a level of a signal component is met as noted above by detecting a noise level with Noise-ME 25. As is well known and taught in col. 9, lines 3-8, a signal to noise ratio is determined during this process. As taught in col. 3, lines 59-65 an upper pilot tone may be inserted for testing or control purposes into the 116 to 120MHz band, meeting the claimed high frequency signal included within a frequency range and command register 213 (fig. 10), registers commands from control signals. Curry inherently teaches the claimed "subtraction unit" to obtaining a noise level from an upstream signal (col. 9-10), note the numerous mathematical operations including subtraction to obtain signal levels are performed. Noise-ME 25 also compares

a noise level with a threshold or "reference level" and detects a noise increase based on the comparison (col. 3, lines 34-42).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 6 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over **Curry et al. (3,750,022)** in view of **Furukawa et al (5,987,069)** as applied to claim 1 above, and further in view of **Schwartzman et al. (6,385,773).**

As claim 6, Curry further teaches where the noise-reduction device comprising a unit for obtaining a level of a signal component demodulated through coherent detection of the upward signals (col.3, lines 34-42), note line control circuit 27 includes a unit for sampling noise to monitor and measure noise in a conventional manner (col.9, lines 3-8), a signal to noise ratio is determined during this process to determine a measure of noise.

Curry as modified by Furukawa, fails to teach obtaining a level of noise "through detection of noises observed on the signal line during a time period when no signal component is present."

However, note **Schwmzman** teaches a system and method for determining an optimum upstream frequency channel based on noise and bit-error-rate assessments

and further teaches determining an intrinsic power level as a measure of the noise level at a time when no data or signal is being transmitted (col. 11, lines 38-51), comparing a signal level to the level of a noise component (fig. 4, step 408).

Therefore it would have been obvious for one skilled in the art at the time of the invention to modify the system of Curry as modified by Furukawa by monitoring a base noise measurement as taught by Schwartzman in order to ensure a high rate of data integrity (col. 7, lines 57-58).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wolters et al (6,269,106) disclose method to provide information concerning a frequency band, a head-end, a network terminator and a terminal realizing such a method and a communication access network.

Wall, Jr. (5,287,351) discloses method and apparatus for minimizing error propagation in correlative digital and communication system.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q. Shang** whose telephone number is **571-272-7355**. The examiner can normally be reached on **700am-400pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Christopher S. Kelley** can be reached on **571-272-7331**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC) at 866-217-9197 (toll-free)**. If you would like assistance from a **USPTO Customer Service Representative** or access to the automated information system, **call 800-786-9199 (IN USA OR CANADA) or 571-272-1000**.

**Annan Q. Shang**

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